

510,013

Rec'd PCT/PTO 30 SEP 2004

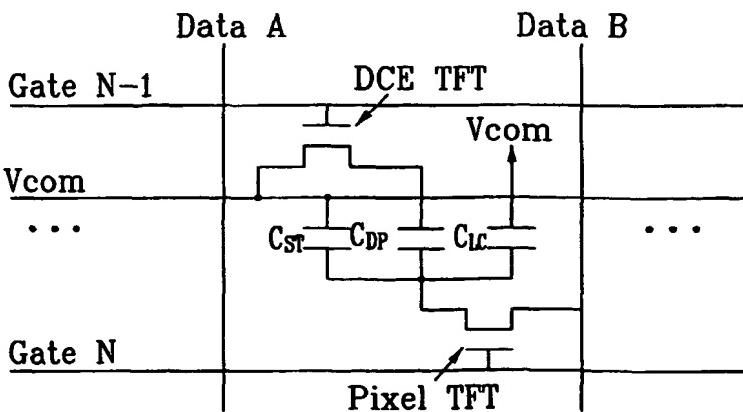
(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
20 November 2003 (20.11.2003)

PCT

(10) International Publication Number
WO 03/096114 A1(51) International Patent Classification⁷: **G02F 1/136**Apt. 110-802, 331, Yatap-dong, Bundang-ku, 463-828
Seongnam-city, Kyungki-do (KR).(21) International Application Number: **PCT/KR02/01392**(74) Agent: **YOU ME PATENT & LAW FIRM**; Teheran
Bldg., 825-33, Yoksam-dong, Kangnam-ku, 135-080
Seoul (KR).

(22) International Filing Date: 24 July 2002 (24.07.2002)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZM, ZW.(25) Filing Language: **Korean**(26) Publication Language: **English**(30) Priority Data:
2002-25536 9 May 2002 (09.05.2002) KR(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).(71) Applicant (*for all designated States except US*): **SAMSUNG ELECTRONICS CO. LTD. [KR/KR]**; 416, Maetan-dong, Paldal-ku, 442-370 Suwon-city, Kyungki-do (KR).**Published:**— *with international search report**For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*(54) Title: **MULTI-DOMAIN LIQUID CRYSTAL DISPLAY AND A THIN FILM TRANSISTOR SUBSTRATE OF THE SAME**

(57) Abstract: A thin film transistor array panel is provided, which includes: a gate wire formed on an insulating substrate; a data wire formed on the insulating substrate, insulated from the gate wire, and intersecting the gate wire; a storage electrode wire formed on the insulating substrate, insulated from the data wire, and intersecting the data wire; a plurality of pixel electrodes provided on the respective pixel areas defined by the intersections of the gate wire and the data wire, each pixel electrode having a cutout; a plurality of direction control electrodes provided on the respective pixel areas defined by the intersections of the gate wire and the data wire; a plurality of first thin film transistors connected to the gate wire, the data wire, and the pixel electrodes; and a plurality of second thin film transistors connected to the gate wire, the storage electrode wire, and the direction control electrodes.

WO 03/096114 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR02/01392

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G02F 1/136

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G02F, H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP: as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PAJ " semiconductor""line""gate" " x type" " 1st line""2nd line" "3rd line""amorphous silicon" "insulator"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 55-7126 (HITACHI LTD) 30, July, 1980 see whole documents	1-16

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

29 NOVEMBER 2002 (29.11.2002)

Date of mailing of the international search report

29 NOVEMBER 2002 (29.11.2002)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

CHO, Kyoung Hwa

Telephone No. 82-42-481-5767



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR02/01392

Patent document
cited in search reportPublication
datePatent family
member(s)Publication
date

JP 55-7126

30 - 07 - 1980

None